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R E P O R T

of the

THIRD SOUTHERN PASTURE AND FORAGE CROP IMPROVEMENT CONFERENCE

May 23 - 25, 1946

Kentucky Agricultural Experiment Station
Lexington, Ky.

Reported by

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REPORT OF THE THIRD SOUTHERN PASTURE AND FORAGE CROP IMPROVEMENT
CONFERENCE, MAY 23 - 25, 1946

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POST WAR RENEWAL REGIONAL CONFERENCE

With the ending of the war, many workers interested in "Grassland" development inquired as to whether the conferences held in the past would be renewed. The first opportunity for consideration of such conferences was provided at the meetings of the American Society of Agronomy at Columbus, Ohio, the latter part of February 1946. An informal meeting of the Executive Committee members of the Southern Pasture and Forage Crop Improvement Conference, present at Columbus agreed that it would be desirable to make plans for such a conference. The Chairman was asked to make inquiries regarding the possibilities of arranging for the conference during the 1946 crop season.

The Kentucky Agricultural Experiment Station kindly agreed to act as host for the conference to be held May 23-25, 1946 at Lexington, Ky. Despite the limited time allotted in preparation for the meeting, an interesting and worthwhile program was prepared. Representatives from every state in the region were present except Arkansas and South Carolina. Since the conference was held in the Northern part of the region grassland specialists from states adjacent to Kentucky were invited, with representatives present from Indiana and Missouri.

The discussions were devoted to state reports of progress and developments in pasture and forage crop improvement programs during the war period. The greater need for joint consideration of grassland problems in the post-war adjustment period was stressed. Visits to the pasture and forage crop work on the Station added much of interest to the program. The tour conducted by Dr. Fergus to some nearby thoroughbred horse breeding farms was most interesting. Previous to the tour Dr. Garrigus, Head of Animal Husbandry gave the group a brief history of the saddle horse industry in Kentucky and P. E. Karraker reported on the soils of the bluegrass region.

The Kentucky Agricultural Station staff, and especially Dr. E. N. Fergus, are to be complimented for making the conference such a success.

M. A. Hein
Acting Secretary

Note:

The Permanent Secretary wishes to express appreciation to Mr. Hein, Dr. E. N. Fergus and H. R. Albrecht for the excellent manner in which they completed local arrangements and conducted the meeting. Also to Mr. Hein and sectional secretaries for their reports on discussions that were used as a basis for this release of the Third Conference.

O. S. Aamodt
Permanent Secretary

MINUTES OF THE BUSINESS AND EXECUTIVE SESSIONS OF
THE SOUTHERN PASTURE AND FORAGE CROP CONFERENCE

May 23 - 25, 1946, Lexington, Kentucky

I. Business Meeting, Thursday, May 23, 1:45 p.m. H. R. Albrecht, Chairman

1. Election of executive committee members to replace H. R. Albrecht, resigned, and G. W. Burton, term expired.

John B. Washko, Tennessee, elected for 4-year term
George C. Warner, Texas " " 2-year "

2. The executive committee as it now stands:

H. W. Bennett, Chairman,	term expires	1949
J. B. Washko,	" "	1950
George Warner,	" "	1948
R. L. Lovvorn,	" "	1947
E. H. Hostetler (Animal Husbandry)		
J. F. LaMaster (Dairy)		
O. S. Amoldt, permanent secretary		

II. Executive Committee Meeting, May 23, 7:00 p.m.

1. In attendance: H. W. Bennett, J. B. Washko, G. C. Warner, R. L. Lovvorn, G. W. Burton, H. R. Albrecht, Byron Southwell (for Dairy group), R. L. Lush (for Animal Husbandry).
2. A letter from Dr. Lowry of the Florida Agricultural Experiment Station extending an invitation to the conference to meet in Gainesville in 1947 was read by H. R. Albrecht. It was moved and seconded to report this action favorably to the conference.
3. At the conference, on May 24, the recommendation of the Executive Committee that the 1947 meeting be held in Gainesville, Fla., was accepted by unanimous vote.

THIRD SOUTHERN PASTURE AND FORAGE CROP IMPROVEMENT CONFERENCE
LEXINGTON, KENTUCKY, MAY 23 - 25, 1946

Thursday, May 23

9:30 A.M. - 12:00 M

Room 112

Animal Pathology Building

H. R. Albrecht, Chairman
Paul R. Henson, Secretary

Introduction

Dr. Albrecht introduced Dean T. P. Cooper, Dean of Agriculture and Director of the Kentucky Experiment Station. Dean Cooper welcomed the group to the Kentucky Station, pointing out that with the pastures in Kentucky looking so well at this time the group should be greatly stimulated in the discussion and planning of pasture investigations for the southern region in such a favorable atmosphere. Dean Cooper also pointed out that some counties had as high as 83 percent of the total tillable acreage in pastures. These improved pastures are on some of the best land in the state. The farmers are finding that as the stake in grassland is enlarged, the income from the farm increases.

Professor E. J. Kinney also assured the group of their welcome to the Kentucky Station. Problems of pasture production in the South were briefly presented. According to Professor Kinney the successful development of the livestock industry in the South is dependent on three factors. First: the agronomist and research men will have to develop grasses and legumes which are adapted to existing southern conditions. Second: the study of soil conditions necessary for pasture growth has hardly been touched. Close coordinated work with plant breeders and soils men is essential for the solution of this problem. Third: the southern farmer still needs to be sold on the direct and indirect value of the pasture. Not only should the farmer be made aware of the direct value of pastures for livestock and livestock returns, but the value as a soil improvement and soil conservation crop should be stressed.

Announcements: Dr. E. N. Fergus

According to Dr. Fergus, the program for the conference would not be changed unless some of the field trips were interrupted by rains. He pointed out that on the field trip Saturday morning we would see a limited number of horse farms in the vicinity of Lexington, but that it would hardly be possible to see very much on such a brief trip. Those interested in seeing more of the Kentucky pastures were advised to stop Saturday afternoon at the sub-station at Princeton, Ky., where extensive pasture work is under way.

Dr. Fergus introduced the various members of the departments of agronomy, animal industry, and animal pathology, University of Kentucky, who had been working toward the successful culmination of the conference.

II. State Reports

North Carolina - R. L. Lovvorn

We are still interested in North Carolina in continuing our work in fertilizer placement and rates. This seems particularly important to us now when we realize that we are getting much more essential returns from these materials when they are incorporated into the surface of the soil. It is quite probable that the older results will not be applicable when we change our system of incorporating them. In an attempt to answer these questions we have initiated a series of experiments in which we are comparing the effects of rates and placement of limestone, phosphate, and potash on the yield and chemical composition of (1) alfalfa-orchard grass, and (2) Dallis-lespedeza.

We are continuing our work with nitrogen fertilization on permanent pastures and now have an experiment in which we are studying both the effects of rates of nitrogen and management of the sward. Our maximum rate is 200 pounds of elemental nitrogen.

The management and adaptation of a number of forage species are being continued at our station. These may be briefly summarized as follows:

1. Lotus species - preliminary evidence indicates that Lotus uliginosus may be able to maintain itself in association with carpet grass in the Coastal Plain soils of eastern North Carolina. For a long time we have needed a legume that could maintain itself under such conditions. We are hoping to expand this study in the future.
2. Ladino clover - The favorable weather conditions during the springs of 1945-46 have led to considerable enthusiasm for this crop. It is now growing on land originally considered too unproductive and too droughty for white clover. Additional evaluation trials are needed before we will be able to know what its definite limitations are.
3. Black medic and Tifton bur clover have also shown unusual promise in our Tidewater section.
4. Alfalfa - Our success with this crop when used for hay leads us to believe that it will also become an important grazing crop.

We are, therefore, interested in management trials when seeded alone and in association with grasses to study the persistence when subjected to grazing conditions.

5. Dallis grass - Even though this is our best pasture grass for eastern North Carolina, it is still difficult to obtain stands under many conditions. We plan to determine the underlying factors causing this difficulty.
6. Meadow fescue nursery plantings of Alta and Suiter's fescue have indicated that this species might have a place in many sections of this state. We have long needed a perennial grass with a little wider adaptation than orchard grass possesses.

We continue to have inoculation difficulties in the sandy soils of eastern Carolina and we are hoping to cooperate with Dr. Erdman of the Bureau of Plant Industry, Soils, and Agricultural Engineering, in this problem.

Georgia - O. E. Sell

Dairying is an important industry in Georgia but the value of pastures for dairy cattle has not been appreciated. Proper utilization and management of Georgia pastures would undoubtedly enable dairymen to produce cheaper and better milk and eliminate barn feeding to a very large extent. Year-around grazing from the livestock standpoint is essential. In livestock production, fall calving would be more desirable than spring calving under certain conditions if winter grazing is available. The early seeding of small grains and ryegrass along with heavy fertilization, 300 to 600 pounds of NPK and 150 pounds of nitrate of soda in February, has resulted in excellent winter pastures.

The utilization of permanent pastures to supplement winter grazing is desirable in wet weather. From a plant breeder's standpoint more attention should be paid to strains of oats particularly desirable for pastures. Bur clover offers considerable promise as a winter legume if good stands are secured. Sweet clover may work well into the winter grazing program.

In the Georgia pasture fertilization program, it has been found that some nitrogen fertilizer is necessary in mid-summer to carry grasses through. It would be desirable to investigate physiological and pathological characteristics of the various pasture species. The reaction of white clover to a hot and dry weather is a physiological problem. The evaluation of disease-resistant species is a necessity in the successful development of southern pastures. Soil improvement practices to increase the fertility and organic matter are necessary in the establishment of permanent pastures in Georgia.

Georgia, Coastal Plains - J. L. Stephens

One of Georgia's main livestock producing problems is wintering cattle. After preliminary trials in growing various cereals, a new winter grazing test was initiated during the past year. Abruzzi rye and Vicland oats were planted for early winter grazing while Sanford wheat and Rustproof Southern oats were planted for later grazing. Cattle were put on grazing January 1 on the early cereals, then later rotated on the late cereals. An average of two animals were carried per acre and gains were good. This system seems to offer much promise, not only in carrying capacity, but in lengthening the grazing period.

Other tests on dates of planting cereals in the late summer and early fall indicated that plantings made in August and September were destroyed by mole crickets, which eat the tender seedlings soon after they come up. Best stands were secured from October plantings.

Top dressing temporary pasture mixtures of Abruzzi rye, oats and hairy vetch, which were fertilized with 100 pounds muriate of potash and 300 pounds superphosphate, indicated that 200 pounds of nitrate of soda at planting or at least by December 1 gave best grazing.

Other tests at the Experiment Station are being continued. Some of these include an extensive breeding program in forage crops, and also range reseeding projects on various soil types in forested areas.

New additional work has been started on the improvement of kudzu and velvet beans.

Florida - G. B. Killinger

Florida has treated in one way or another over one million acres of improved pastures during the past 10 years. Much of the improvement has been phosphate treatment, limestone, potash, some nitrogen and trace elements, with one or more of these fertilizer compounds being applied to Florida pastures. Seeding has been done on many acres with improved grasses and legumes, carpet grass, Bahia, Pangola, and Coastal Bermuda being the grasses most commonly planted. White clover, bur, Persian, sweet clover, black medic, common lespedeza and Kobe lespedeza have been the legumes most generally seeded.

The Florida Station is now increasing seed of new black medic and sweet clover strains. A new yellow sweet (non-poisonous) lupine is also being increased. To date this lupine appears to be relished by cattle as a feed. It also produces hard seed and volunteers from season to season.

From 1936 to 1946 the blue lupine acreage has grown to some 300,000 acres chiefly in Florida, Georgia, and Alabama. Over 11,000,000 pounds of seed were harvested in 1945. While this rapidly increasing acreage of blue lupine has been made, it is interesting to note a few of the effects of the lupine on following crops. For example, in 1945 following the turning under of a 35,000 pound growth of blue lupines the first of May, cat-tail millet seeded May 17 and harvested July 1 produced over 50,000 pounds of green matter per acre at one clipping. Lupines to date excel any other winter legume in Florida for ease of establishment and growth. Green weights of lupines plowed under in Florida for soil building average from 25,000 pounds per acre to over 50,000 pounds. Most tillable soils will grow lupines if they are properly inoculated. Little if any response has been noted from fertilizer on this crop. An average crop of lupines turned back to the soil can be expected to contain in terms of fertilizer materials the following equivalents in pounds per acre: Nitrate of soda 110, 18% superphosphate 300, and 60% muriate of potash 179.

Oats are proving excellent as a winter feed crop. The new varieties Florida 167, Quincy¹, Quincy², and Florilee are rust resistant and when properly fertilized are producing gains from 1 to 2 pounds daily when grazed by cattle from November through April.

The Florida Station is distributing free of charge to farmers planting material of the Pangola, Coastal, Bermuda, and Bermuda No. 99 grasses. Many plantings have been made over the state.

Pasture research is being conducted by the outlying stations as well as by four Mobile Units operating in north and west Florida.

White clover is being planted on soils suited to its growth, namely, the low, moist soils usually high in organic matter and dark in color.

As to fertilizer on pastures - nitrogen may or may not pay off. Phosphorous, potassium and calcium all improve composition of herbage and quality of feed.

Florida can now produce year round grazing for cattle by using white clover, carpet grass, Bahia, Pangola or Bermuda, native grasses, cattail millet and winter oats. As Florida pasture grasses and legumes improve, so too will her quality of livestock.

Mississippi - H. W. Bennett

The facilities for increased experimentation in agriculture are to be considerably enlarged due to the action taken by the recent Mississippi legislature which calls for the establishment of four new substations and the reactivation of one. Much of the work will concern itself with pastures and forage crops.

Pasture investigations will consider several phases of establishment and production. One of the most important parts of this research will be the determination of what plant combinations are necessary to obtain best results and their value for year round grazing. Attempts will be made to determine the value and length of grazing of various crops and their subsequent utilization for seed or feed production. Other factors to be considered are species adaptability, effect of time and rate of fertilization, renovation trials, methods of management, and trials comparing the cost of production from pasture and grown feedstuffs.

Forage Crop Investigations will have as their objectives varieties and crops for hay and seed production, methods of seed harvesting, crop rotations, effects of rates and analyses of fertilizers, and the production and utilization of perennial crops, particularly kudzu, alfalfa and sericea.

Past experiments and experience have shown fertilization and management to be the most needed practices for the production of profitable pasture production. Indications are that 200 pounds of P_2O_5 and 100 pounds of K_2O should be used when starting a pasture on most Mississippi soils. This should be followed by annual applications of 60 pounds of P_2O_5 annually and 100 pounds of K_2O material every third year. Management studies show that temporary or supplemental crops are necessary for late summer in order to rest the permanent pasture. Such rest will enable cattle to make better gains in September, October, and early November, stocking pastures so that clipping is necessary for year in and year out pasture production. Wintering cattle on such clippings is economical under Mississippi conditions. Crops used for winter grazing should be seeded early (by September 1) for economical production.

Heavy fertilization and good seed-bed preparation are necessary for alfalfa production but this is the most economical hay for most sections of the state. A combination of Alyce clover and wild winter peas is giving good grazing, hay, or seed for south Mississippi. Johnson grass is the outstanding hay for the "Prairie" belt and tests show the need of phosphorous, nitrogen and renovation (every third year) for best results.

Thursday Afternoon Session

1:45 P.M. - 3:15 P.M.

M. A. Hein, Chairman
R. E. Wagner, Secretary

State Reports (Continued)

Alabama - H. T. Rogers

Legumes in State, 1945

	<u>Lbs. seed planted</u>	<u>Lbs. Harvested</u>
Hairy & smooth vetch	6,833,000	2,448,000
Willamette Vetch	2,799,000	154,000
Blue lupine	3,245,000	4,173,000
Caley peas	1,976,000	4,063,000
Crimson clover	1,233,000	1,344,000

Use of grain sorghums increasing rapidly in Alabama

Winter Grazing (1945)

	<u>Acres</u>
Crimson (alone)	24,000
Crimson (mixtures)	23,000
Small grain (alone)	221,000
Small grain (mixtures)	119,000
Caley peas	99,000
Red clover	1,000
Bur clover	2,000

Acreage of Permanent Legumes 1945

Kudzu	213,000
Lespedeza sericea	97,000
Alfalfa	8,000
Imp. Perm. Past.	1,083,000

Most of so-called improved pastures still not receiving fertilizers.

Currently important problems in Alabama:

White clover grows primarily in low, wet areas. Looking for grass-legume combinations on upland, relatively infertile and drouthy areas.



Orchard grass

Considerable interest in northern Virginia in seed production of orchard grass.

Comprehensive experiment at Orange Station on fertility relationships:

Fertility studies at Orange Station: Nitrogen alone and at two rates; phosphorous alone and at two rates; K_2O alone and at two rates. Plus all possible combinations with foregoing.

Ladino clover: Seed bed preparation; fertility; date of planting; clipping treatments, grass mixtures

New work in breeding: Brome grass, common lespedeza, timothy, orchard grass, alfalfa, and red clover.

Dr. Smith inherited a new strain of Virginia alfalfa developed at Williamsburg Station now under isolation for increase.

Virginia red clover (northern neck grown) offers splendid genetic material for further breeding.

Louisiana - C. R. Owen

Concentrating on Dallis grass in the breeding program:

Started with old established material in Louisiana. Have isolated a number of strains. Wide variation in plants and strains. Differences in fertility of plants and quality of seed. Usually get spring, summer, and fall seed crops. Spring and fall usually best. Last year got very little seed production in fall after heavy rains.

Red clover, white clover and lespedeza:

Starting with native material for breeding program. Quality of common lespedeza seed not as good on light soils as on heavier. Alyce clover deserves attention.

Program turned over to Dr. Fergus for field trip to breeding and varietal trials. This included red clover strain trials; alfalfa-grass mixtures; space planted nurseries of Kentucky bluegrass, orchard grass, tall fescue, and brome grass; fertilizer and seed production studies of K-31 tall fescue; bluegrass-legume mixtures; and bluegrass fertilizer and height of cutting tests.

The Southern selection of red clover was outstanding. Of the grasses, orchard, tall fescue and tall oatgrass were generally outstanding in many of the plots.

Meeting adjourned for dinner at University cafeteria.

State Reports (Continued from afternoon session)

Texas - G. C. Warner

There are 169,000,000 acres in Texas. Over 100,000,000 acres in range and pasture. There are 11 different physiographic regions in Texas.

Changes in Texas agriculture:

A few years ago cotton moved from Blacklands and Grand Prairie areas to areas in West. In Grand Prairie region they are using and growing extensive areas of sweet clover. Primarily annuals - some Madrid in past few years. Many farmers have now obtained combines to harvest sweet clover seed. With sweet clover farmers can graze, harvest seed, and get increase of 25 - 75% in next crop.

Real problem areas:

East Cross Timber region; West Cross Timber region; Grand Prairie; Blacklands; Rio Grande region.

Winter peas, flax, vetch, and small grains now grown in areas where they were never grown before.

Root rot

Ordinarily does not affect winter legumes. Annual sweet clover goes out before root rot comes in. Follow sweet clover with oats, then cotton. Too much nitrogen for cotton to follow sweet clover directly in some areas.

Forage legume work primarily confined to winter legumes. Revegetation of plowed lands to permanent grasses:

Native grasses recommended. Now have strains of buffalo grass that produce seed 5" high.

3

Introduced grasses showing promise:

Summer grasses:

Rhodes grass, Yellow beardgrass (Andropogon ischaemum),
A. intermedius, Panicum antidotale, Bermuda, Bahia

Winter grasses:

Weeping lovegrass in high timber regions, Rescue, tall fescue

Fertilizer work:

Gulf Coast Prairie (light, sandy soil; very deficient in phosphorous). Cows develop creeps from phosphorous deficiency. Most of this work carried on at King Ranch. Effect of super-phosphate applied in 1940 is still evident. On untreated areas obtained 60% calf crop - 1 calf per cow in 17 months. On treated pasture 90-95% calf crop - 1 calf in less than a year. Have found that phosphating 25% of pasture does away with creeps.

Miscellaneous new work:

Small grains as forage.
Growing two crops on same land in one year
Vetch or bur clover plowed under, followed by Sudan or sorghum.

Missouri - E. M. Brown

There are 34,000,000 acres of farm land in Missouri; 10,000,000 acres in pasture other than woodland. This ratio very likely will not change. Nearly all pastures require lime and phosphate. Poor soils require potash. Grasslands need nitrogen.

Fertilization:

Depend largely on legumes for nitrogen source. Also comparing use of ammonium nitrate. Concentrating primarily on lespedeza and sweet clover in the legumes. Ladino clover now showing much promise. Working with grazing and management problems on lespedeza and sweet clover. Surveying possibilities of red clover, alfalfa, alsike, low hop, ladino, and birdsfoot trefoil.

Planning new set of pasture experiments in southeastern part of state.

Area consists of about 8 counties in northern end of Mississippi Delta. Important crops are now cotton, corn, alfalfa, and soybeans - cash crops. Very little pasture. Some small grain and lespedeza. Should increase pasture to make agriculture more stable.

Possibilities for pasture crops:

Rye-lespedeza; wheat-lespedeza; winter oats-lespedeza; ryegrass-lespedeza; brome-alfalfa; orchard-lespedeza; tall fescue-lespedeza or sweet clover; tall oat-subterranean clover. Intend to measure produce in this area through beef in comparison with corn and cotton.

Tennessee - J. B. Washko

Work includes primarily varietal, adaptation and cultural tests.

Alfalfa

Continually growing in importance. Crown rot (Sclerotinia trifoliorum) most important disease: Establishment of alfalfa on rolling lands a problem. One of problems is to get seed into Tennessee in time for fall seeding.

Red clover

Acreage is declining in state. Some farmers like it because it fits well into rotations. Problem is to get seed production. Tennessee wilt resistant strain grown widely.

Annual lespedeza

Need good hay and pasture type that is not too late. Climax looks good but a bit late. Dodder is a serious problem in lespedeza.

Other annual legumes

Hard seeded crimson clover is being used. Need crimson clover resistant to lodging, earlier maturing, (mature at time of small grain), better seed-holding qualities but not too much so. Sclerotinia is a problem.

Bur clover is not dependable

Button clover shows promise:

Need better strains-higher yield, resistance to lodging. Need strain that will mature with small grain. Sclerotinia a problem. Suitable comparison crops-oats shows promise. Cultural problems and seed harvest to be worked out.

Hop clover

Comes in on low fertility areas. Better forage strains in process of development

Black medic

Explore possibilities

White clover

Tennessee harvests considerable seed - also of Ladino. Losing stands because of susceptibility to disease. Cultural problems and seed production need to be worked out.

Grasses

Transition zone between northern and southern grasses. Kentucky bluegrass one of the important grasses. Bahia and carpet unadapted. Orchard in eastern Tennessee at high elevations looks good. Dallis looks good if it can be more easily established. Bermuda has some merit. Tall fescues should be evaluated.

Supplementary pastures

Tift sudan

Needs resistance to leaf spot.
Prussic acid poisoning somewhat of a problem.

Cattail millet shows some possibilities.

Effort should be made to extend pasture season. Small grains alone or with Crimson or Button clovers offer possibilities. Need work on chemical composition of forages. Small grains often contain 27% protein in fall but only 17% in spring. May be maturity or soil fertility relationship. Wild onion and other weed eradication programs should be studied. 2-4-D offers great possibilities.

Friday, May 24

8:30 A.M. - 12:00 M

J. B. Washko, Chairman
Clarence Hanson, Secretary

III. Post-war Pasture and Forage Crops Problems in South

Discussion leader, R. L. Lovvorn

In addition to the fact that there are great differences in opinion among southern pasture specialists regarding the frequencies and rates of fertilizer application, most workers feel that the big problem in the South is the adaptation of pasture species to the region. Dixie crimson clover and sericea should be given more attention. They should be tested more widely to determine in what regions they are best adapted. Carpet grass, tall fescue and orchard grass need to be investigated more thoroughly.

Specific problems that need to be attacked include:

1. Extension of the pasture season to 12 months per year
2. Rotational grazing
3. Find more efficient ways to evaluate pasture species
4. Regional testing programs
5. Incorporate extension staffs into testing programs
6. Study rates and methods of seeding more intensively
7. More extensive fertilizer studies

Discussion:

Lovvorn: North Carolina has been able to reduce seeding rates of alfalfa with good seed bed preparation.

Sell: Seeding rates probably cannot be reduced much in Georgia because of crab grass competition.

McVickar: More attention should be given to seed bed preparation in order to reduce seeding costs. Not recommend 12 lbs. alfalfa seed per acre in western Virginia.

Washko: Seed bed preparation and proper fertilization of alfalfa must be studied more closely in Tennessee. The use of other species along with alfalfa will not reduce costs because many of these are as expensive as alfalfa. Tennessee is testing the possibility of establishing alfalfa in small grains in the spring.

Representatives of all states indicated a desire to participate in cooperative regional testing programs.

IV. Seed Production of Improved Varieties

Discussion leader, G. W. Burton

Forage crops seed production problems are extremely important particularly in the production of new varieties. Not enough attention is given to the proportion of varieties which have taken years to develop.

Agencies increasing new forage legumes in the South:

AES = Ag. Expt. Sta.

CIA = Crop Improvement Assoc.

Virginia: Virginia Red clover and Virginia alfalfa (A.E.S.)
Virginia Northern Neck Red Clover (C.I.A.)

North Carolina: Dixie Crimson Clover. Foundation Seed Producers
Roanoke soybeans

Georgia: Dixie Crimson clover (A.E.S., but being turned over to
C.I.A.)
Climax lespedeza (A.E.S.)
Gatan soybeans (A.E.S.)

Florida: Indigo, late and early (A.E.S. and S.C.S.)
Dixie Reener Peanuts (Farmers)

Alabama: Auburn Crimson Clover (A.E.S.)
Alabama #5 Crotalaria (A.E.S. - not commercial)
LaFayette Monantha vetch (A.E.S.)
Auburn woolypod vetch "
Alabama Conemon " "
Willamette " (Farmers)
Grandiflora " (A.E.S. and S.C.S.)

Mississippi: Climax lespedeza (A.E.S.)
Roanoke, Ogden, and Volstate soybeans (C.I.A.)

Louisiana: Arcadian and Pelican soybeans (A.E.S.)

Texas: Madrid and Emerald s. clover (A.E.S.)

Tennessee: Tennessee wilt resistant red clover (Foundation Seed Prod
Ogden and Volstate soybeans " " "
Dixie Crimson clover " " "
Climax lespedeza (A.E.S.)

Kentucky: Kentucky 215 (C.I.A.)

New grasses being produced in the South:

Kentucky: Kentucky 31 fescue (C.I.A. and farmers)

Georgia: Sanford wheat (C.I.A.)
Coastal Bermuda (C.I.A., A.E.S., farmers)
Tift Sudan (Commercial)
Pensacola Bahia (S.C.S.)

Florida: Napier grass (A.E.S.)
Coastal Bermuda (A.E.S.)
Pangola grass (A.E.S.)

Mississippi: Honey and Hodo sorghum (A.E.S.)

Texas: Rescue grass (A.E.S.)
Cold resistant Rhodes grass (A.E.S.)
Forage sorghums (A.E.S.)

Tennessee: Sugar drip sorghum (Foundation Seed Producers)

Missouri: Alta fescue (C.I.A.)
Achenbach brome (C.I.A.)
Elsberry brome (C.I.A.)
Balbo rye (C.I.A.)

Seed production problems that need attention:

1. Proper isolation
2. Mechanical mixtures
3. Proper cultural practices
 - a. support for decumbent types, such as vetch
 - b. burning over established sods - up to 500#/A of Bahia grass seed on burned plots at Tifton
 - c. fertilization, particularly with N, has proved beneficial on Bermuda grass sods at Tifton
4. Breeding for increased seed production
5. Maintenance of purity of components of varieties such as Dixie
Crimson clover

V. Problem Crops

Johnson grass, H. W. Bennett

The big problem in Mississippi is to increase the acreage of Johnson grass. It should be cultivated every 3 years to encourage growth and to reduce weed populations. This practice should be accompanied by adequate fertilization and intelligent management.

Johnson grass should be planted only in those areas where it is already present - in Mississippi, that would be the Black Belt.

Cogon grass (Imperata cylindrica), George Ritchey

Cogon grass grows readily on poor soils and is highly drought tolerant. It provides grazing late into the fall. It produces large, scaly, rhizomes and must be propagated vegetatively. Cogon grass can be kept in check by grazing and centipede grass competes well with it.

The analysis of Cogon grass in comparison with carpet grass:

Cogon grass - Average of Three Analyses for Each Sample Which has been Collected at Different Points in Florida

	:Percent	:Percent	:Percent	:Percent	:Percent	:Percent	:Percent
	: Ash	: Sand	: N	: P	: K	: Ca	: Mg
Cogon (0-10-10							
((4' hay stage)	3.612	0.462	0.829	0.187	1.435	0.295	0.165
(Callahan							
and (No fertilizer							
((3' hay stage)	5.442	3.882	0.648	0.077	0.316	0.314	0.143
Torpedo (Ocala							
(No fert. 8"							
grass (4/18/45	2.962	0.735	0.037	0.104	0.306	0.315	0.121
mixture (Gainesville							
Carpet grass							
Gainesville	8.742	2.105	1.527	0.283	0.399	0.993	0.151
Not fertilized							

Analyses Furnished by
G. B. Killinger

Rough pea, H. R. Albrecht

The rough pea, Lathyrus hirsutus, also known as wild winter, Caley, or Singletary pea, has become an important grazing legume in the Black Belt area. It is not a satisfactory green manure crop because of its lateness. Stands are difficult to establish because of the high number of hard seeds, a condition that can be improved with scarification.

Cattle should be removed from rough peas at the time of flowering to avoid the occurrence of lathyrus poisoning. Poisoning from this plant is not considered as serious as it once was; although affected animals may "stiffen", none have been known to be lost.

Panicum repens, M. A. Hein

Common names for this grass are creeping panicum or torpedo grass. It produces limited quantities of viable seed and is similar in growth habit to cogon grass. In general this grass has little to recommend its extensive use.

Bermuda grass, Ralph Kenney

Bermuda grass does not produce seed in Kentucky and is difficult to establish in this state because of poor survival the first year. Even so, there are stands in Kentucky known to be over 20 years old.

Additional remarks, by G. W. Burton

In Georgia, the problem has been to develop a better Bermuda grass before the ordinary had spread over the whole state. Coastal Bermuda answers this need. Are obtaining more information on grazing of Coastal Bermuda.

Additional remarks by L. R. Neel

Difficulty of eradication of Bermuda has led to studies on how it can best be utilized. Bermuda furnishes grazing during hot, dry periods. Carrying on studies of association of Bermuda grass with white clover, ear hop, and lespedeza.

Burning in the fall and applications of sodium chlorate effect some control (Tennessee) but 2-4-D is not fatal (Georgia).

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Friday, May 24

1:45 P.M., Afternoon Session

Howard Hyland, Secretary

VI. Recent Developments in Management of Experimental Pastures

Discussion leader, R. H. Lush

Mr. Lush lead the discussion on recent developments in management of experimental pastures. Reviewed old pasture conferences - attitudes, subjects and attendance. New methods of research have been developed. Pasture conference originated at meeting of Southern Agricultural Workers 16 years ago. Problems of fertilizer, seed production and management stressed at that time. State and regional problems must be met. Discriminations against meat produced on grass had to be overcome. Techniques involved in evaluating meat and milk products rather detailed.

Need to think of economic utilization of pasture production in terms of animal products. Reason for lack of development of livestock industry in South is use of recommendations out-dated or brought in from old countries. War conditions forced forage crop and pasture problems to front. The South needs maintenance or production pastures. Labor too expensive to produce certain type pastures. Reported use of 1600 lbs. per acre of 4-8-4 by one farmer on pasture for 14-year period on permanent pasture for winter grazing. Area more tillable after four years than after first. Organic matter incorporated. Year around pastures needed and will be used. Lush predicted next 3 years most critical in developing these pastures when they will be needed. Livestock men are ready and waiting for them. Are far ahead of agronomists.

Should superphosphate be used as top dressing? Much more information needed. Placement and methods of application studies needed. Effects on legume maintenance important. Disease resistance a problem. Heavy vs. light phosphate applications must be determined. Effects of fertilizer on winter pastures should be learned.

1,670,000 tons of fertilizer used on grasslands and permanent pastures until 1945

970,000 tons on small grains and annual hay crops
2,800,000 tons used in forage crops - one-fourth of total production
3,100,000 tons used in South to grow all feed crops - should be used for growing forage plants.

Critical feed shortage means more efficient production is necessary. Many research problems need urgent progress and solution.

VII. Techniques in Handling Livestock on Experimental Pastures

Discussion by Dr. G. C. Mott

The discussion covered a brief summary of studies in sorting and allotting cattle to pastures. In general, the bases used for sorting were (a) age, (b) quality, (c) fleshiness, and (d) weight. In 1944 little or no increase in precision in grazing experiments was obtained from sorting, however, in previous years greater precision was obtained. By sorting, less cattle are necessary for getting efficient readings of pasture production, reducing the number from 100 to 83. A weighing technique in which the cattle are taken off feed and water at 7 or 8 o'clock in the evening and the weights taken the following morning, was found to be satisfactory.

The meeting adjourned for a short field trip.

Inspected animal and dairy husbandry pastures. Renovation tests comparing different fertilizer and seeding mixtures have just been started. Dr. Garrigus explained techniques used in measuring the nutritive value and digestive experiments of pasture and forage.

Friday, May 24

Evening Session

Football Room, Union Building

VIII. Agricultural Changes in the South

Meeting called to order by retiring committee chairman, H. R. Albrecht. New chairman, H. W. Bennett took over and introduced Mr. L. R. Neel of Columbia, Tennessee Experiment Station. Mr. Neel indicated changes in cotton production due to competition with industrial labor prices and mechanization would influence post war agricultural conditions in southern states. A tendency towards larger farms seems imminent. Mr. Neel called on the following personnel to express their ideas on changes in farming which might occur in post war era, especially in livestock and pasture areas.

Dr. Bennett stated cotton acreage in Mississippi was only 40% of pre-war but production as high due to use of machines. Reduction in acreage may result, or at least offers opportunity for diversified farming.

Mr. Kinney stated that one of Kentucky's big problems - as well as other areas in neighboring states - was ability of poor farmers on small farms to make a living. By use of grass and more dairy cattle, a partial solution may be reached. If industries are set up to absorb these smaller farm laborers into industrial labor, larger farms may be developed.

Dr. Brown indicated little change would occur in Missouri's livestock or pasture program. Certain areas, especially Ozark regions, need for grass and improved pastures.

After general statements by Dr. Hollowell on future of Agriculture in the Southeast, and by Dr. Fergus that grassland farming may increase above its present high level in Kentucky, the meeting was adjourned.

REGISTRATION LIST
Southern Pasture and Forage Crop
Improvement Conference

1946

ALABAMA

R. O. Parks	Alabama Polytechnic Institute U.S.D.A.	Auburn, Ala.
Ernest H. Stewart	" " " "	" "
Howard T. Rogers	Alabama Agricultural Exp. Sta.	" "
J. L. Sanders	Coke Oven Ammonia Research Bureau	Birmingham, Ala.

FLORIDA

G. B. Killinger	Florida Agr'l. Experiment Sta. U.S.D.A.	Gainesville, Fla.
Geo. Ritchey	" " " " " "	" "

GEORGIA

Edwin James	College of Agriculture	Athens, Ga.
O. E. Sell	Georgia Experiment Station	Griffin, Ga.
Glenn W. Burton	Coastal Plain Expt. Station U.S.D.A.	Tifton, Ga.
H. J. Hodgson	" " " " "	" "
B. L. Southwell	" " " " "	" "
J. L. Stephens	" " " " "	" "

INDIANA

H. R. Albrecht	Purdue University	Lafayette, Ind.
Gerald O. Mott	" "	" "

KENTUCKY

Thos. P. Cooper, Dean.	Ky. Agricultural Expt. Sta.	Lexington, Ky.
E. J. Kinney	" " " "	" "
Encil Dean	" " " "	" "
E. N. Fergus	" " " "	" "
J. S. Freeman	" " " "	" "
Lawrence Henson	" " " "	" "
H. H. Jewett	" " " "	" "
Wm. C. Johnstone	" " " "	" "
Harold Miller	" " " "	" "
H. B. Morrison	" " " "	" "
J. T. Spencer	" " " "	" "
Wm. C. Templeton	" " " "	" "
Martin E. Weeks	" " " "	" "
R. E. Kenney	" " " "	" "
Barney A. Tucker	Richmond Road	" "
C. L. Hill	Soil Conservation Service	" "

Registration List (Continued)

LOUISIANA

C. R. Owen	Louisiana State University	Baton Rouge, La.
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MARYLAND

Howard L. Hyland	USDA - Div. Forage Crops & Diseases	Beltsville, Md.
M. A. Hein	" " " " "	" "
E. A. Hollowell	" " " " "	" "
R.E. Wagner	" " " " "	" "
Fred V. Grau	U. S. Golf Assn. Green Section	" "

MISSISSIPPI

H. W. Bennett	Miss. Agricultural Expt. Station	State College, Miss.
Robert B. Carr	USDA - Div. Forage Crops & Diseases	Stoneville, Miss.
Paul R. Henson	" " " " "	" "

MISSOURI

E. Marion Brown	USDA - Div. Forage Crops & Diseases	Columbia, Mo.
	& University of Missouri	

NORTH CAROLINA

D. S. Chamblee	North Carolina State College	Raleigh, N.C.
Clarence H. Hanson	USDA - North Carolina State College	" "
R. L. Lovvorn	North Carolina State College	" "

OHIO

H. H. Tucker	Coke Oven Ammonia Research Bureau	Columbus, Ohio
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TENNESSEE

John Ewing	Middle Tennessee Expt. Station	Columbia, Tenn.
L. R. Neel	" " " "	" "
H. W. Wellhausen	Agri'l Extension Service	Knoxville, Tenn.
John B. Washko	Agricultural Experiment Station	" "
Randall J. Jones	TVA	" "
H. E. Hendricks	Knoxville Fertilizer Co.	" "

TEXAS

George C. Warner	Texas - A & M College	College Sta., Tex.
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Registration List (Continued)

VIRGINIA

H. J. Smith	Virginia Experiment Station	Blacksburg, Va.
R. G. Henderson	" " "	" "
M. H. McVickar	" " "	" "

WASHINGTON, D.C.

R. H. Lush	National Fertilizer Assn.	Washington, D.C.
Grover T. Brown	Soil Conservation Service	" "